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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,351	05/23/2006	Lars Friedrich	965.1002	1729
35236 7590 01/09/2008 THE CULBERTSON GROUP, P.C. 1114 LOST CREEK BLVD. SUITE 420 AUSTIN, TX 78746			EXAMINER BOLDA, ERIC L	
			ART UNIT 3663	PAPER NUMBER
			MAIL DATE 01/09/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/580,351

Applicant(s)

FRIEDRICH, LARS

Examiner

Eric Boldt

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is responsive to Applicant's amendment of Oct. 26, 2007.
2. The objections to claims are withdrawn based on the amendment.

### ***Drawings***

3. The drawings were received on Oct. 26, 2007. These drawings are accepted.

### ***Response to Arguments***

4. Applicant's argument A ( pp. 11-12) regarding the 35 USC 1<sup>st</sup> para. rejection of claims 1, 11, and 13, and now as it would be applied to the new claims 15-33, under 35 USC 112 have been considered but are not persuasive. Applicant states that the term "amplified spontaneous emission" is known in the art to refer to any type of light produced by spontaneous emission, that has been optically amplified by the process of stimulated emission in a gain medium. Applicant insists that in the usage of this term, the gain medium may be "not only gain media with discrete levels". The Examiner disagrees, since for the example of Raman scattering in fiber Raman amplifiers, there are no discrete levels and the noise contribution to the light is referred to by those skilled in the art as "amplified spontaneous Raman scattering" or just "amplified spontaneous scattering". See e. g. Mochizuki et al., "Amplified Spontaneous Raman Scattering in Fiber Raman Amplifiers". Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant

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intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “amplified spontaneous emission” in claims 15, 18-20, 26-28, and 32-33 is used by the claim to mean “amplified light from spontaneous Raman scattering”, while the accepted meaning is “amplified light from spontaneous emission (i. e. in a gain medium with level population inversion).” The term is indefinite because the specification does not clearly redefine the term.

5. Applicants argument **B** regarding ( pp. 12-13) regarding the 35 USC 2<sup>nd</sup> para. rejection of claims 1 and 11 is persuasive in view of amendment to remove the phrase “in particular”. However, a new rejection is made below.

6. Applicant's arguments **C** with respect to prior art rejection of the claims have been considered but are moot in view of the new ground(s) of rejection. The claimed features not disclosed by the Kamada reference are taught by the newly cited reference.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 15-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

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invention. The claims are replete with references to “amplified spontaneous emission”, (“ASE”) but no amplifiers employing gain media with discrete levels are mentioned anywhere in the disclosure. In the art, the term “amplified spontaneous emission” is used to designate a type of scattered light emitted from gain media with discrete levels (e. g. Erbium-doped fiber), while the term “amplified spontaneous scattering” is used for scattered light in a Raman process (e. g. undoped glass fiber). Reading the claims in light of the specification in particular p. 4, lines 14-18, it appears that a Raman amplifier may have been intended (otherwise, the claims can not be enabled). Hence, if a Raman amplifier is intended, the correct term would be “amplified spontaneous scattering”.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 15-33 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claims 15-33 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the Specification filed Oct. 26,2007. In that paper, applicant has stated (p. 9, lines 15-18) “an optical amplifier unit 7 which preferably causes an optical amplification utilizing the Raman effect, but in any case couples a sufficiently high optical pump power into the transmission line 9 that the nonlinear Raman effect occurs”, and this statement indicates that the invention is different from what is defined in the claim(s) because the claims do not mention the Raman effect or Raman amplifiers at all.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 15-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamada (US 7,031,049) in view of Large (US 6,373,621).

With regard to claims 28-29, Kamada discloses discloses in Fig. 5 a Raman amplifier with

- A coupling unit (32) for coupling the pump power of an optical pump source (34) into an optical transmission line (30)
- a coupling unit (38) for decoupling the amplified spontaneous scattering (ASS) light fed back toward the pump of the amplifier
- a detector unit(48) detecting the decoupled ASS

- a control unit (44) controlling the pump source (34) and reception of the detector signal

Note: language such as "for coupling" " for decoupling", "for detecting" , "for modulating" and "for comparing" are essentially statements of intended or desired use in the apparatus claims 28-33. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference, as shown below. See MPEP § 2114.

The control unit takes a signal from the ASS detector (48) and compares it to a preset threshold value, generating an alarm (error) signal when the value falls below the threshold value (8<sup>th</sup> col. lines 9-24). This operation occurs during during the start up period of the optical amplifier (6<sup>th</sup> col. lines 59-67, 7<sup>th</sup> col. lines 1-5). Kamada does not disclose that the controller modulates the pump power of the optical signal generated by the pump. However, Large teaches that in an apparatus for safer operation of Raman amplifiers, the pump power is modulated so that the ceasing of the pump signal can be detected based on a characteristic, e. g. sensitive to the phase of the modulation, indicating a break in the fiber line. A controller then reduces or shuts off the pumps. (6<sup>th</sup> col. lines 24-43). It would have been obvious to one skilled in the art (e. g. an optical engineer) to combine the teaching of Large to modulate the pump power during the start up of the optical amplifier, in the apparatus of Kamada, for the advantage of providing unique identification of the signals. Note that, in Raman amplification, modulation of the pump will result in modulation of an ASS signal.

With regard to claim 31, the coupler (32) is a band separation coupler (i. e. wavelength dependent), configured to pass substantially all the signal light along the transmission fiber (5<sup>th</sup> col. lines 9-16).

With regard to claim 32-33, the coupler (40) decoupling the ASS signal is wavelength independent (couples both the signal and ASS light) (7<sup>th</sup> col. lines 39-42).

With regard to claim 15, the steps of the method are merely the normal operation of the apparatus of Kamada, as modified by Large, with the error signal being generated to reduce or shut down the pump. Specifically, Kamada disclose the normal method of operating the Raman amplifier of Fig. 5, including monitoring the transmission line (30), coupling the optical pump source (34) into the transmission line (30), feeding back the ASS light and detecting that light at (48), and generating an alarm (error) signal when the power of the detected ASS signal falls below a preset threshold value (5<sup>th</sup> col. lines 5-40 and 8<sup>th</sup> col. lines 9-24).

With regard to claim 16, when the alarm (error) signal is activated the pump light is deactivated (Kamada, 8<sup>th</sup> col. lines 16-17).

With regard to claims 18-22, the pump power is increased from an initial power level to a final power level, while the ASS signal is detected (Kamada, 6<sup>th</sup> col. lines 39-48).

With regard to claim 23-24, the pump power is modulated and the average is below a certain limit (Large).

With regard to claim 25, the pump light is coupled into the optical transmission line in the opposite direction of the signal light (Kamada, Fig. 5).



With regard to claim 26-27, the threshold value of the ASS power is determined in a calibration process (Kamada, 6<sup>th</sup> col. lines 39-48).

13. Claims 17 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamada in view of Large as applied to claims 15 and 28 above, and further in view of Aoki et al. (US 6,879,434). Kamada in view of Large disclose all the elements of the claim except that error signal generates an error message. However, Aoki teaches an optical network in which operation includes error information from various optical nodes being collected to produce error messages (e. g. to indicate a failed fiber coupler) (10<sup>th</sup> col. lines 40-44). It would have been obvious to one skilled in the art (e. g. an optical engineer) to include a step of generating an error message from the alarm signal of Kamada, for the purpose of alerting the operator to replace the faulty fiber or coupler.

Note that the citations made herein are done so for the convenience of the applicant; they are in no way intended to be limiting. The prior art should be considered in its entirety.

### ***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

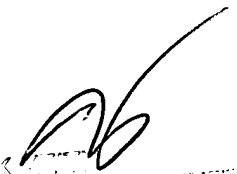
15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric Bolda whose telephone number is 571-272-8104. The examiner can normally be reached on M-F from 8:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Jack Keith, can be reached on 571-272-6878. Please note the fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EB

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